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ABSTRACT

Cognitive strategy instruction is currently garnering much attention in the literature as an effective means of teaching children who display learning difficulties in a wide variety of academic areas. In reading, the Paraphrasing Strategy, which is one of an array of strategies used in the Strategies Intervention Model (SIM) (Schumaker, Deshler, & Ellis, 1986), has been shown to have a positive effect on reading comprehension in the limited research investigating its utility (Ellis & Graves, 1990; Lauterbach & Bender, 1995). The present study used a unique single-subject reversal design suggested by Barlow and Hersen (1984) for reversing seemingly "irreversible" learning behaviors in order to investigate the effect of the paraphrasing strategy on reading in a male African American, middle school student in regular education who showed difficulties in reading comprehension. A positive effect was found on paraphrasing, comprehension and reading rate following strategy instruction. These findings suggest the usefulness of the paraphrasing strategy in addressing reading comprehension problems. Contains 34 references, a table listing the sequence of stages for learning the Paraphrasing Strategy, and a figure of data. (Author/RS)

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Running head: THE EFFECT OF THE PARAPHRASING STRATEGY

ED 476 287

The Effect of Instruction in the Paraphrasing Strategy on Reading Fluency and Comprehension

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Abstract

Cognitive strategy instruction is currently garnering much attention in the literature as an effective means of teaching children who display learning difficulties in a wide variety of academic areas. In reading, the Paraphrasing Strategy, which is one of an array of strategies used in the Strategies Intervention Model (SIM) (Schumaker, Deshler, & Ellis, 1986), has been shown to have a positive effect on reading comprehension in the limited research investigating its utility (Ellis & Graves, 1990; Lauterbach & Bender, 1995). The present study used a unique single-subject reversal design suggested by Barlow and Hersen (1984) for reversing seemingly "irreversible" learning behaviors in order to investigate the effect of the paraphrasing strategy on reading in a male African American, middle school student in regular education who showed difficulties in reading comprehension. A positive effect was found on paraphrasing, comprehension and reading rate following strategy instruction. These findings suggest the usefulness of the paraphrasing strategy in addressing reading comprehension problems.

The Effect of Instruction in the Paraphrasing Strategy on Reading Fluency and Comprehension

The emerging emphasis on the importance of teaching children how to learn through the use of cognitive strategies suggests an effective means of meeting the needs of children with a wide range of learning problems. Despite the growing research base on effective strategies, strategy instruction has not been incorporated into the curriculum on a large scale (Thompson, 1985). Cognitive strategies have been defined as how an individual thinks and acts during planning, carrying out and evaluating performance (Deshler & Lenz, 1989). Over the years, strategies have assisted students in acquiring skills in an array of academic areas (Pressley 1995). While strategies are used to teach basic skills (Jenkins & Dixon, 1983), the importance of knowing how best to approach a task becomes most salient once basic skills have ceased to be taught and application of skills using higher order processes is increasingly stressed, typically around the fifth grade (Sheinker, Sheinker, & Stevens, 1984).

In reading, a variety of strategies have been proposed with varying reports of effectiveness (Berkowitz, 1986; Denner & Rickard, 1987; Palinscar, 1987). Multiple strategy approaches for reading comprehension have been developed to increase positive results over those of singular strategies. The Paraphrasing Strategy is a reading comprehension strategy developed by the Center for Research on Learning at the University of Kansas that has been found to increase reading comprehension (Schumaker, Denton & Deshler, 1984). This strategy uses a mnemonic (RAP) that teaches students to **R**ead a paragraph, **A**sk themselves what the main idea and important details are, and to **P**ut the main idea and details into their own words. The strategy is popular in part because it is a logical approach used informally by many teachers and is easily incorporated into classroom instruction.

The manual for the Paraphrasing Strategy reports gains in reading comprehension on grade level materials of an average of 35 percentage points after instruction in the strategy (Schumaker, Denton, & Deshler, 1984). A review of the literature showed only one published study on the Paraphrasing Strategy. Three students with mild disabilities were studied using a multiple baseline with an embedded changing criterion design. Results showed an increase in comprehension and

paraphrasing skills after training on the Paraphrasing Strategy in students with mild disabilities (Lauterbach & Bender, 1995).

The Present Study

While the existing research on the Paraphrasing Strategy is promising, more studies are needed to strengthen its validity especially with diverse student populations. Although the Paraphrasing Strategy is reported to be appropriate for a variety of learners including at-risk, low-achieving and culturally different students (Schumaker et al, 1984), existing research has focused primarily on students with identified learning disabilities (Lauterbach & Bender, 1995; Schumaker & Deshler, 1992). While the purpose of the present study was to investigate the effectiveness of the Paraphrasing Strategy, there are at least three other aspects of the study that are unique.

This study used a field-based research methodology thereby reducing problems of generalization found in contrived studies or artificial settings. Approaches like the experimenting society model (Campbell, 1988) have been advanced by Johnson, Stoner & Green (1996) to promote field-based research for solving practical educational problems. Second, the study utilized curriculum-based measurement (CBM) that features direct observation and recording of student performance using materials from the students' curriculum (Shinn, 1995). Current research promotes CBM as a sound measure of both reading fluency and comprehension (Deno, Mirkin, & Chang, 1982; Fuchs, Fuchs & Maxwell, 1988; Hintze, Shapiro, Conte & Basile, 1997; and Rasinki, 1990) and is widely used in the schools to assess the effectiveness of educational programs and holds promise as a valid method of linking what is taught to what is measured (Shinn, 1995). CBM is also designed to be sensitive to short-term effects of instruction (4-6 weeks) and allows continuous progress monitoring (Shinn, 1995).

Finally, the study used a single-case experimental design. The relative benefits of single-subject designs have been discussed extensively in the literature (Morgan & Morgan, 2001; Martens, Eckert, Bradley & Ardoin, 1999; Kratochwill, 1977; and Kratochwill & Levin, 1978). Training in these designs has been promoted as a way to improve the practicality of the scientist-

practitioner model (Nelson-Gray, 1995). With regard to single-subject research designs, Morgan and Morgan (2001) assert:

> The method is unabashedly inductive and resembles logically the research strategy of the natural scientist. Moreover, the single-participant design is compatible with the idiographic decision making of what Stricker and Trierweiler (1995) called the "local clinical scientist." This flexibility of method is unheard of in large group designs in which the hypothetico-deductive logic places substantial restraints on what will be observed during experimentation and what sorts of inferences can be drawn from the results. (p. 123)

McComas, Wacker, Cooper and Asmus (1996) argue that brief experimental analysis may help us to understand the instructional variables responsible for enhancing school learning.

The use of the reversal design has a long history of use in the social sciences. The reversal design "provides the most powerful demonstration of causality available to the applied researcher." (Tawney & Gast, 1984, p. 202). Reversal designs used to study educational problems have focused mainly on disruptive behavior (e.g., DeMartini-Scully, Bray & Kehle, 2000) and on improving study skills and social interactions (Hinton & Kern, 2000; Spohn, Timko & Sainato, 1999). It has been argued that the use of a reversal design in studies examining the effects of academic instruction is problematic as the learning cannot be reversed or unlearned when instruction is removed. However, Barlow and Hersen (1984) suggest that the reversal may be administered early in the learning process before environmental contingencies have been established to maintain the behavior. This experimental approach has been used successfully in which instructional sets were used to study the nonverbal interactions between couples (Eisler, Hersen & Agras, 1973) and in sensitization therapy for homosexual subjects (Barlow, Leitenberg, Agras, Callahan & Moore, 1972). The present study explores the use of this method to determine whether early withdrawal of instruction may be used to show the controlling effects of the Paraphrasing Strategy intervention.

Method

Participant

The participant was CD, a 12-year-old African American male who was in the sixth grade in an urban, Midwestern middle school. He was referred to the building student assistance team (SAT) team by his mother. She reported concerns that he had to study excessively due to low reading skills. The standardized achievement testing using the Woodcock-Johnson Psycho-Educational Battery-Revised: Tests of Achievement (WJ-R) (Woodcock & Johnson, 1989) revealed word identification skills near grade level and reading comprehension skills at the mid-third grade level. The building SAT recommended instruction in a comprehension strategy. Informed consent was obtained from the student's parents for participation in the study and the subject also gave verbal assent.

Intervention and Research Design

The Paraphrasing Strategy (Schumaker, Denton & Deshler, 1984) is a multi-step cognitive strategy that teaches students to paraphrase what they read with a goal of increasing comprehension. The key stages of the strategy include well-researched learning principles. The sequence of stages for learning the Paraphrasing Strategy used in this study can be seen in Table 1. The effects of the strategy were assessed through the use of an ABAB reversal design according to procedures suggested in Barlow and Herşen (1984). All reading passages used in the study came from CD's school reading series: "*Invitations to Literacy*" published by Houghton-Mifflin.

Phase A - Baseline. During baseline sessions, no instruction in the Paraphrasing Strategy was provided. Baseline data were collected over eight days within a three-week period using fifth grade level reading passages. Within each week, data were collected on consecutive days.

In each session, CD was instructed to read two passages. The participant read the first passage aloud for 1 minute and the investigator marked errors. The second passage was presented with the following instructions, "Read the paragraph, then turn on the tape recorder and tell me what you learned from the passage." On the following day, at the beginning of the session, CD

was given a comprehension test on the second passage from the previous day. At the end of this phase, CD was shown his scores on the paraphrasing and comprehension measures, he then wrote a goal to commit to learning the Paraphrasing Strategy.

Phase B^1 Intervention - Initial Learning and Practice (Describe, Model, Verbal and Controlled Practice). Instruction followed the steps exactly as outlined in the Paraphrasing Strategy manual (Schumaker et al., 1984). Stages 2 through 4 of the Paraphrasing Strategy were implemented over a two-day period (see Table 1). They consisted of describing the strategy, modeling the correct use of the strategy by the investigator while "thinking out loud", and verbal practice of the RAP steps and how to carry them out. The student was required to memorize the steps of the Paraphrasing Strategy to a criterion of 100%. The strategy was practiced using both instructional and grade level materials. During reading, the student paraphrased each paragraph and used cue cards outlining the requirements of a correct paraphrase for self-monitoring. The day after the reading was completed, the student completed the comprehension tests for each grade level probe. Specific and corrective feedback was given. A treatment integrity checklist, completed by the second author, for both intervention phases showed 100% concordance with the Paraphrasing Strategy steps.

Phase A – Reversal. A return to baseline was carried out according to procedures suggested by Barlow and Hersen (1984). This phase followed the same procedures as the baseline.

Phase B^2 Intervention – Review and Advanced Practice. Five consecutive days of instruction occurred in the first week and two consecutive days in the second week. The elements of the Paraphrasing Strategy were reviewed and the student was prompted to reinstate the use of the strategy to paraphrase main ideas and details of paragraphs into the tape recorder. After verbal testing to ensure that the student was fluent in the steps of the strategy, the cue cards were not provided. The same materials used in phase two of this study were part of the training here. Stages 5-7 of the Paraphrasing Strategy were taught and practiced in this phase.

Dependent Measures

Paraphrasing Score. The student was instructed to read a graded reading passage (5th grade) of five paragraphs in each session. CD was instructed to read each paragraph, to stop at the end of each, turn on the tape recorder and describe (paraphrase) what he had learned from it. The percent correct score for paraphrasing was obtained according to criteria given by Schumaker et al. (1984). One point was scored for accurately stating the main idea and two details for each of five paragraphs in each passage (15 possible points). No points were given for more than two details. In order to receive a point the paraphrase must: be a complete thought with a subject and a verb, be accurate, contain new information, make sense, contain useful information, be in the student's own words, have only one general statement and must not be a repetition of previous statements. The total score was obtained by adding the points scored for the whole passage and dividing by the total possible.

Comprehension Score. A ten-question open-ended comprehension test was given for each paraphrased passage one day after the paraphrasing session. The comprehension questions were controlled for difficulty by using the following configuration of 60% knowledge, 20% comprehension, 10% analysis and 10% synthesis questions in each test (Bloom, 1956). The percent correct score was calculated by dividing the number of questions answered correctly by the total number of questions.

Accuracy. The procedures outlined by Deno, Mirkin & Wesson (1984) were followed to obtain the accuracy score. Fifth grade CBM reading passages of approximately 250 words, different from those used to obtain the paraphrasing and comprehension scores, were given to the student to read aloud for one minute each. The percentage of words pronounced correctly constituted the accuracy score.

Reading Rate. The same CBM reading passages and administration procedures described for the accuracy score were used to calculate reading rate. As outlined by Deno et al. (1984) the score was calculated as the number of correct words read in 1 minute.

Reliability. Inter-rater reliability checks were obtained during each phase of the study for accuracy of scoring: (a) paraphrasing responses; (b) comprehension answers; (c) responses in oral reading; and (d) reading rate. The mean percentage of agreement for paraphrasing was 80%, 95% for comprehension, 98% for accuracy, and 99% for reading rate.

General Procedures

The study was conducted during school hours in the student's middle school. Sessions typically lasted from 1/2 hour to 45 minutes. Since comprehension tests were given on the day following paraphrasing, two consecutive days were required for one data set to be collected. Fluency measures were then administered and followed by paraphrasing practice.

Results

Figure 1 shows the descriptive statistics and line charts showing the slope, level change and percentage of data overlap across phases for each of the dependent measures. A statistical analysis of the first-order auto-correlation for each of the dependent measures was calculated using the Durbin-Watson (DW) statistic. The DW value was above the critical level for all measures indicating no serial correlation. As a result, data across similar phases were combined and tested for significance.

On the paraphrasing measure, CD's scores during baseline were variable with a decelerating trend but improved with the introduction of the paraphrasing intervention. With the introduction of the reversal, a change in level occurred with a decelerating slope, but the re-introduction of the paraphrasing intervention resulted in an increase in level and trend. A significant treatment effect was observed on CD's paraphrasing skills ($t=-3.9$; $p=.004$).

CD's reading comprehension scores were somewhat variable and decelerating during baseline, but increased dramatically upon introduction of the intervention. With the introduction of the reversal phase, a change in level and trend was observed. When the paraphrasing intervention was reintroduced, reading comprehension increased with a change in level and trend. A significant treatment effect was observed on CD's reading comprehension ($t=-2.9$; $p=.028$).

CD's reading accuracy scores were high and moderately variable during baseline. The paraphrasing intervention had no apparent effect on reading accuracy. After introduction of the reversal, no change in level or trend occurred. When the paraphrasing intervention was reintroduced a weak and variable increase in trend was noted. No significant treatment effect was observed on CD's reading accuracy ($t=0$; $p=1.0$).

CD's reading rate during baseline was stable with a decelerating trend. The paraphrasing intervention resulted in a positive effect on reading rate. During the reversal, a level change and a decelerating trend were noted. After re-introduction of the Paraphrasing Strategy, CD's reading rate showed a large increase in level and trend. A significant treatment effect was observed on CD's reading rate ($t=-2.4$; $p=.04$).

Discussion

This study contributes to the knowledge base on the effectiveness of the Paraphrasing Strategy showing a positive effect in reading comprehension and paraphrasing. The finding that reading rate was also influenced was unexpected. It may be speculated that the emphasis on paraphrasing fluency and goal setting in the Paraphrasing Strategy may have carried over to reading rate during the intervention phases. The lack of significant change in reading accuracy may be accounted for by CD's average range word identification skills found in the initial testing.

The findings also support the validity of Barlow and Hersen's (1984) suggestion that a seemingly "irreversible" learning procedure can be reversed early in the learning process. In this study, we showed the controlling effect of strategic reading comprehension instruction on skills that have not as yet crystallized through controlled practice with corrective feedback.

The findings on paraphrasing and reading comprehension must be interpreted cautiously however due to the variability and overlap in scores (Tawney & Gast, 1984). Another weakness of this study was that no attempt was made to control the subject matter of reading passages. Research suggests that story interest will affect reading comprehension (Belloni & Jongsma, 1978). While the results of this study should be interpreted with caution, for students similar to CD, the study shows positive and practical effects for a reading comprehension intervention that

can be used by teachers and practitioners who complain that reading research is impractical and rarely suggests useful classroom applications (Niemi, 1990). Further research is needed with children of different ages, backgrounds and reading comprehension skills to enhance the generalizability of the Paraphrasing Strategy.

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Table 1

Sequence of stages for learning the Paraphrasing Strategy (Schumaker, Denton & Deshler, 1984)

Each stage begins with a review of previous stages and an advance organizer for the upcoming steps and skills to be learned. In Stages 2 and 3 a post-organizer is used to summarize the content of learning. In all stages, a "Management Chart" is completed to check for stage completion

Stage 1: Pretest and Make Commitments – Pretest for paraphrasing skills. Obtain commitment from student to learn the strategy. Instructor commits to helping student to learn the strategy.

Stage 2: Describe – Situations in which the strategy could be used are discussed. Learning goals are set. Steps of the paraphrasing are taught/described and include; 1) read a paragraph; 2) identify the main ideas and details of each paragraph and how to locate them; 3) paraphrase the main idea and details; 4) use the RAP mnemonic to remember the strategy steps and; 5) identify the parts of a good paraphrase. Cue cards are created to assist the student in remembering the steps.

Stage 3: Model - The strategy is demonstrated for the student and questions are encouraged.

Stage 4: Verbal Practice - Students are required to learn the strategy steps at an "automatic level" by verbalizing them out loud maximizing self-instruction in acquisition of the strategy. This is done both with, and without cues.

Stage 5: Controlled Practice and Feedback - After the student has demonstrated mastery of the steps in Stage 4, practice opportunities with specific performance and corrective feedback are provided by practicing the strategy using easier materials. The emphasis here is on learning to use the strategy fluently.

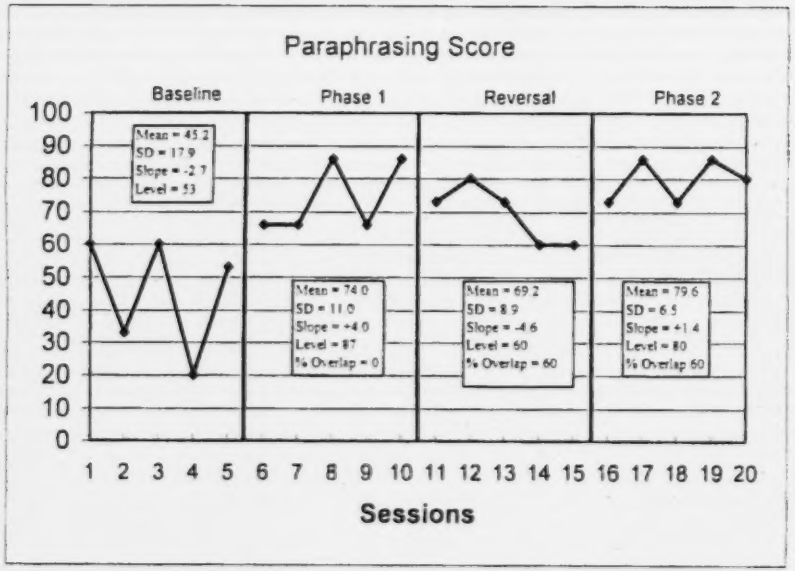
Stage 6: Advanced Practice and Feedback - Plenty of practice in grade level materials is provided in this stage. Fading of instructional prompts is emphasized to increase generalization and independent use of the strategy.

Stage 7: Posttest and Make Commitments - A commitment for use of the strategy in multiple settings is the focus here. The teacher also commits to the student to maintain a continuing role to helping the student learn the strategy. Progress made by the student is examined along with a plan for continuous progress monitoring.

Stage 8: Generalization - This stage focuses on helping the student to understand the many settings in which the strategy may be used and give them practice in these settings. Finally, students are taught how to adapt the strategy to novel situations. Follow-up on strategy use with each student is emphasized.

Figure Caption

Figure 1. Descriptive statistics and lines charts for the dependent variables showing slope, level change and percentage overlap across phases.


Paraphrasing Score
Baseline
Phase 1
Reversal
Phase 2
Mean = 45.2
SD = 17.9
Slope = -2.7
Level = 53
Mean = 74.0
SD = 11.0
Slope = +4.0
Level = 87
% Overlap = 0
Mean = 69.2
SD = 8.9
Slope = -4.6
Level = 60
% Overlap = 60
Mean = 79.6
SD = 6.5
Slope = +1.4
Level = 80
% Overlap 60
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
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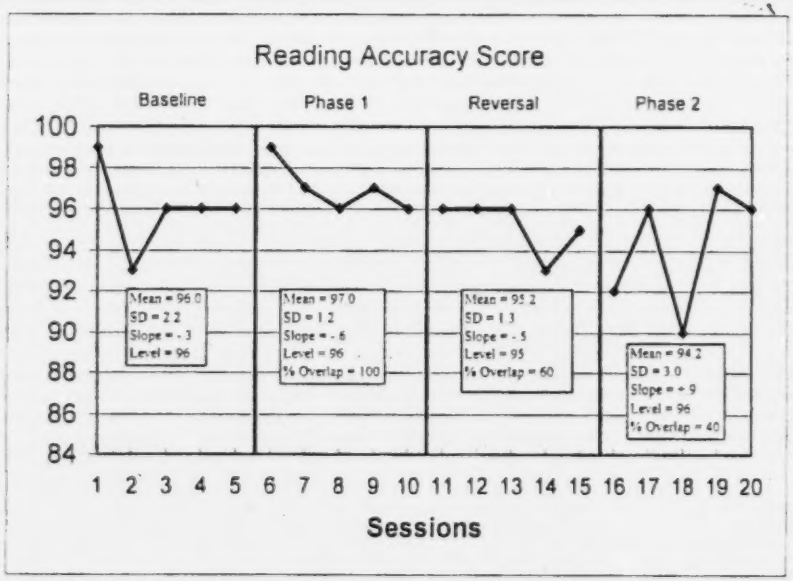
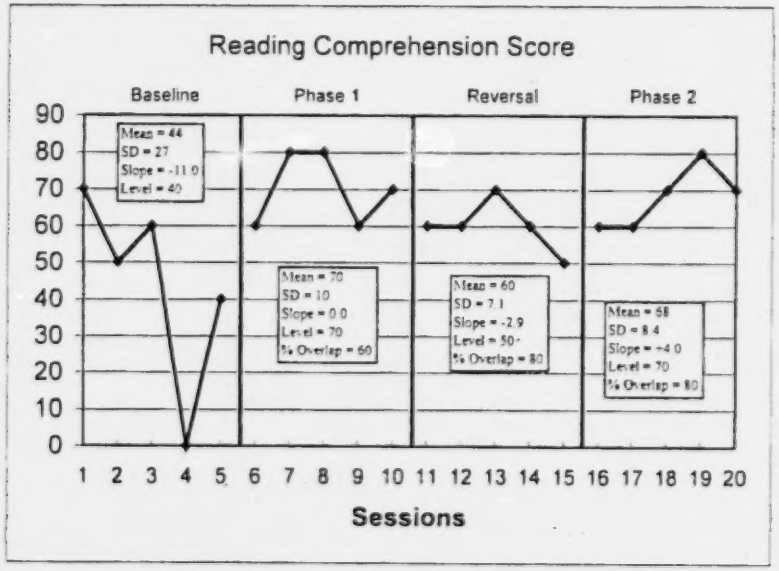

Reading Accuracy Score
Baseline
Phase 1
Reversal
Phase 2
Mean = 96.0
SD = 2.2
Slope = - 3
Level = 96
Mean = 97.0
SD = 1.2
Slope = - 6
Level = 96
% Overlap = 100
Mean = 95.2
SD = 1.3
Slope = - 5
Level = 95
% Overlap = 60
Mean = 94.2
SD = 3.0
Slope = + 9
Level = 96
% Overlap = 40
100 98 96 94 92 90 88 86 84
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Sessions


Reading Comprehension Score
Baseline
Phase 1
Reversal
Phase 2
Mean = 44
SD = 27
Slope = -11.0
Level = 40
Mean = 70
SD = 10
Slope = 0.0
Level = 70
% Overlap = 60
Mean = 60
SD = 7.1
Slope = -2.9
Level = 50
% Overlap = 80
Mean = 68
SD = 8.4
Slope = +4.0
Level = 70
% Overlap = 80
90 80 70 60 50 40 30 20 10 0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
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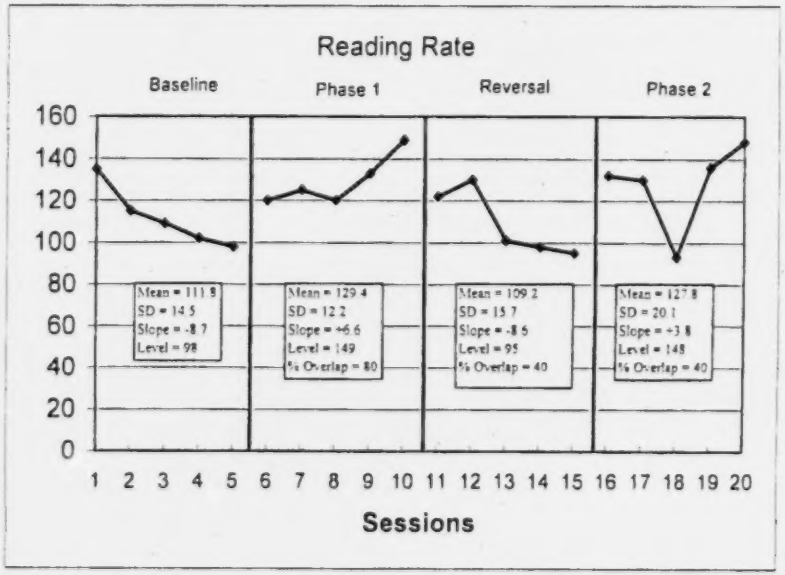
Reading Rate
Baseline
Phase 1
Reversal
Phase 2
Mean = 111.8
SD = 14.5
Slope = -8.7
Level = 98
Mean = 129.4
SD = 12.2
Slope = +6.6
Level = 149
% Overlap = 80
Mean = 109.2
SD = 15.7
Slope = -8.5
Level = 95
% Overlap = 40
Mean = 127.8
SD = 20.1
Slope = +3.8
Level = 148
% Overlap = 40
160 140 120 100 80 60 40 20 0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
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